

16-
66-

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of
the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.

"BJ"



PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : C12N 15/12, C07K 14/705, 16/28, C12N 5/20		A3	(11) International Publication Number: WO 97/22698
			(43) International Publication Date: 26 June 1997 (26.06.97)
(21) International Application Number: PCT/US96/20759		(81) Designated States: AU, BR, CA, CN, CZ, FI, HU, JP, MX, NO, PL, RU, SK, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 20 December 1996 (20.12.96)		<p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 12 September 1997 (12.09.97)</p>	
(30) Priority Data: 08/575,967 20 December 1995 (20.12.95) US 08/661,393 7 June 1996 (07.06.96) US			
(71) Applicant: ICOS CORPORATION [US/US]; 22021 20th Avenue S.E., Bothell, WA 98021 (US).			
(72) Inventors: GRAY, Patrick, W.; 1600 40th Avenue, Seattle, WA 98122 (US). SCHWEICKART, Vicki, L.; 1421 Orange Place North, Seattle, WA 98109 (US). RAPORT, Carol, J.; 2300 211th Street, S.E., Bothell, WA 98021 (US).			
(74) Agent: BORUN, Michael, F.; Marshall, O'Toole, Gerstein, Murray & Borun, 6300 Sears Tower, 233 South Wacker Drive, Chicago, IL 60606-6402 (US).			
(54) Title: CHEMOKINE RECEPTORS 88-2B[CKR-3] AND 88C AND THEIR ANTIBODIES			
(57) Abstract			
<p>The present invention provides polynucleotides that encode the chemokine receptors 88-2B or 88C and materials and methods for the recombinant production of these two chemokine receptors. Also provided are assays utilizing the polynucleotides which facilitate the identification of ligands and modulators of the chemokine receptors. Receptor fragments, ligands, modulators, and antibodies are useful in the detection and treatment of disease states associated with the chemokine receptors such as atherosclerosis, rheumatoid arthritis, tumor growth suppression, asthma, viral infection, AIDS, and other inflammatory conditions.</p>			

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgyzstan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroon	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 96/20759

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/12 C07K14/705 C07K16/28 C12N5/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 270, 14 July 1995, MD US, pages 16491-16494, XP002029908 COMBADIÈRE, C. ET AL. : "Cloning and functional expression of a human eosinophil CC Chemokine Receptor" see the whole document ---	1-15
P,X	WO 96 22371 A (LEUKOSITE INC ;BRIGHAM & WOMENS HOSPITAL (US); CHILDRENS MEDICAL C) 25 July 1996 see claims 1-29,38,39 ---	1-15
P,X	WO 96 39437 A (HUMAN GENOME SCIENCES INC ;LI YI (US); RUBEN STEVEN M (US)) 12 December 1996 see page 33, line 7 - page 34, line 11; claim 1 ---	16-50

-/--

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- * "A" document defining the general state of the art which is not considered to be of particular relevance
- * "E" earlier document but published on or after the international filing date
- * "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- * "O" document referring to an oral disclosure, use, exhibition or other means
- * "P" document published prior to the international filing date but later than the priority date claimed

- * "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- * "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- * "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * "A" document member of the same patent family

Date of the actual completion of the international search

15 July 1997

Date of mailing of the international search report

22.07.97

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+ 31-70) 340-2040, Tx. 31 651 cpo nl,
Fax (+ 31-70) 340-3016

Authorized officer

Nauche, S

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 96/20759

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	BIOCHEMISTRY, MAR 19 1996, 35 (11) P3362-7, UNITED STATES, XP002035224 SAMSON M ET AL: "Molecular cloning and functional expression of a new human CC-chemokine receptor gene." see the whole document ---	16-50
P,X	NATURE, JUN 20 1996, 381 (6584) P667-73, ENGLAND, XP002035225 DRAGIC T ET AL: "HIV-1 entry into CD4+ cells is mediated by the chemokine receptor CC-CKR-5 [see comments]" see the whole document ---	16-50
P,X	NATURE, JUN 20 1996, 381 (6584) P661-6, ENGLAND, XP002035226 DENG H ET AL: "Identification of a major co-receptor for primary isolates of HIV-1 [see comments]" see the whole document -----	16-50

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 96/ 20759

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see continuation-sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 96/ 20759

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

1. Claims: 1-15 A chemokine receptor 88-2B [CKR-3 chemokine receptor], sequence encoding said receptor. Expression vector and recombinant host cells for the production of chemokine receptor 88-2B [CKR-3 chemokine receptor]. Antibodies immunoreactive with chemokine receptor 88-2B [CKR-3 chemokine receptor]. Hybridoma producing said antibodies.
2. Claims: 16-50 chemokine receptor 88-C, sequence encoding said receptor. Expression vector and recombinant host cells for the production of chemokine receptor 88-C. Antibodies immunoreactive with chemokine receptor 88-C. Hybridoma producing said antibodies

INTERNATIONAL SEARCH REPORT

information on patent family members

Inter-vent Application No

PCT/US 96/20759

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9622371 A	25-07-96	AU 5020296 A	07-08-96
WO 9639437 A	12-12-96	AU 2663295 A	24-12-96